

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions, and listing of claims in the application:

Listing of Claims:

1. (Currently Amended) A tri-leaflet heart valve comprising:

an annular valve base with an inner surface defining a central orifice through which a blood flow moves from an upstream side to a downstream side;

three protruding hinges formed on the inner surface of the annular valve base and equally spaced along the inner surface of the annular valve base, each hinge comprising a convex downstream face connected to a convex upstream face by a curved ridge and a pair of concave sockets on opposite sides of the hinge; and

three leaflets arranged between adjacent hinges, each leaflet having an arcuate contour and being provided with a pair of round pivots respectively mounted inside the concave sockets of the hinges ~~and thus allowing~~ , each of leaflets ~~to rotate freely being respectively suspended between a corresponding pair of concave sockets and being freely rotatable~~ within the annular valve base;

when the leaflets are subject to a positive pressure from the blood flow, the leaflets are fully opened to allow the blood to flow through the central orifice, and when the leaflets are subject to a negative pressure, the leaflets are closed to occlude the blood flow.

2. (Currently Amended): The tri-leaflet heart valve as claimed in Claim 1, wherein each leaflet is a fan-shaped plate with a ~~curved configuration forming a continuous and~~ smooth solid outer surface and a smooth inner surface, each with no being devoid of sharp projections; a downstream apex; a bottom edge and side edges where ~~the notches and round pivots~~ a curved notch, a stop edge and the round pivot are formed between each side edge and the bottom edge.

3. (Currently Amended): The tri-leaflet heart valve as claimed in Claim 2, wherein the fan-shaped leaflet has a the downstream apex from which the two side edges extend, and where the side edges of adjacent leaflets tightly seal with each other when the leaflets close.

4. (Currently Amended): The tri-leaflet heart valve as claimed in Claim 2, wherein the fan-shaped leaflet has a the bottom edge forming a tight seal with the a corresponding upstream recess on the inner surface of the annular valve base when the leaflets are closed.

5. (Currently Amended): The tri-leaflet heart valve as claimed in Claim 2, wherein ~~the a~~ downstream surface of the ~~protruding hinge~~ inner surface of the annular valve base is configured to stop the rotation of the leaflet when the leaflet is opened, and maintain it at a predetermined angle and form a seal between the smooth outer surface of the leaflet and the downstream surface of the inner surface of the annular valve base.

6. (Original): The tri-leaflet heart valve as claimed in Claim 2, wherein the ridge of the protruding hinge is configured so that, when the leaflet is closed, the ridge forms a tight seal with the notches of the leaflet.